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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,815	08/21/2003	Zine-Eddine Boutaghou	S01.12-0992	8036

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SEAGATE TECHNOLOGY LLC C/O WESTMAN
CHAMPLIN & KELLY, P.A.
SUITE 1400
900 SECOND AVENUE SOUTH
MINNEAPOLIS, MN 55402-3319

EXAMINER

CHEN, TIANJIE

ART UNIT PAPER NUMBER

2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/645,815

Applicant(s)

BOUTAGHOU ET AL.

Examiner

Tianjie Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2007.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 28-33 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 1-21 is/are allowed.
6) ☒ Claim(s) 28-31 is/are rejected.
7) ☒ Claim(s) 32,33 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Final Rejection

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 28, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al (US 6,707,646).

Claim 28, Berger et al shows a prior art suspension interconnect in Fig. 1, including: a suspension 110 (Column 5, line 1); a conductive element (the conductive cores in insulating covers in 160, column 5, lines 3-5) positioned on the suspension; and a piezoelectric element 140 for adjusting the height of the transducer (Column 5, line 8-10).

Berger teaches his invention shown in Fig. 3B includes a heating element 420 (Column 6, line 32) positioned on the suspension and including a low resistivity portion 430 and a high resistivity portion 420 (Column 6, lines 32-35) for adjusting the height of the transducer. Berger further teaches that the prior art mechanism has the drawback that such element requires larger area on the suspension what complicates further minimization of the suspension arm (Column 2, lines 16-19) and his invention can bend the suspension locally or even buckled by locally varying the spring constant (Column 2, lines 43-46). One of ordinary skill in the art would have been motivated to apply Berger et al's invention onto the prior art suspension. In such constructed device, an insulating component (the insulation cover of the wires in 160)

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positioned between the conductive element and the heating element such that the conductive element and the heating element are electrically isolated.

Claim 30, Berger et al shows that the high resistivity portion includes an undulating pattern (Fig. 3B).

Claim 31, Official notices is taken: it is routine practice in the art that two bond pads are electrically interconnected to at least two conductive elements.

2. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al as applied to claim 28 above, and further in view of Tam et al (US 5,421,943).

Claim 29, Tam et al shows a heating element has same sketch as disclosed in Berger et al's device, but has more detailed structure, wherein the high resistivity portion 51 has a smaller thickness than the low resistivity portion 53 (Fig. 3D).

Allowable Subject Matter

3. Claims 1-21 are allowed.

Claim 32 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- With regard to independent claim 1, as the closest reference of record, Tam et al (US 5,421,943) discloses a slider body having a trailing edge face; a bond pad positioned on the trailing edge; a heating element including a low resistivity portion and a high resistivity portion; **but fails to show** conductive trace connected to the bond pad to form an electrical connection; the high resistivity portion positioned proximate the electrical connection; and an insulating

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component positioned between the conductive trace and the heating element proximate the electrical connection.

- With regard to independent claim 13, as the closest reference of record, Schott (US 6,349,017) discloses a suspension assembly comprising: a suspension; a slider body supported by the suspension and having a trailing edge face and at least one bond pad positioned on the trailing edge face; and means for providing an electrical connection between a conductive trace and the at least one bond pad; **but fails to show** that means for providing an electrical connection between a conductive trace and the at least one bond pad using a heating element positioned on the suspension, the heating element having a high resistivity portion and a low resistivity portion.
- With regard to claim 32, as the closest reference of record, Berger et al (US 6,707,646) shows a suspension interconnect with a heating element, **but fails to show** a flex circuit including the heating element.
- With regard to claim 33, as the closest reference of record, Berger et al (US 6,707,646) shows a suspension interconnect with a heating element, **but fails to show** that the heating element is adapted to provide heat to a bonding component, wherein the bonding component provides an electrical conduit.
- Applicant asserts: in conventional structure, weak interconnect leads to an increased potential failure mode of the electrical connection between the slider bond pads and the FOS bond pads. Embodiments of the present invention address to these and other problems (Specification, p. 2).

Response to Arguments

4. Applicant's arguments with respect to claim 28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is 571 272 7570. The examiner can normally be reached on 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nguyen Hoa can be reached on 571 272 7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


TIANJIE CHEN
PRIMARY EXAMINER